

PATENT ABSTRACTS OF JAPAN

(11)Publication number : **07-244343**

(43)Date of publication of application : **19.09.1995**

(51)Int.Cl.

G03B 35/18

(21)Application number : **06-033679**

(22)Date of filing : **03.03.1994**

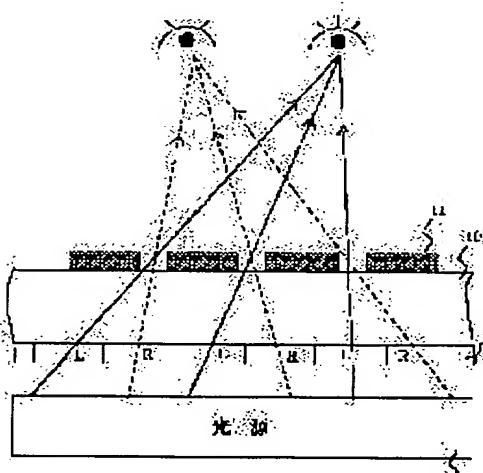
(71)Applicant : **SANYO ELECTRIC CO LTD**

(72)Inventor : **MURATA HARUHIKO
OKINO TOSHIYUKI
MAENAKA AKIHIRO
IINUMA TOSHIYA
OKADA SEIJI
MASUTANI TAKESHI**

(54) STEREOSCOPIC PHOTOGRAPH

(57)Abstract:

PURPOSE: To obtain a stereoscopic photograph at low cost without necessitating special spectacles.



CONSTITUTION: The stereoscopic photograph is constituted of a transparent sheet 10 having specified thickness, a parallax barrier 11 printed on the 1st surface of the sheet 10 and the stereoscopic image 12 printed on the 2nd surface of the sheet 10. The parallax barrier 11 is printed with back ink at the specified pitch in a vertical stripe state on the 1st surface of the sheet 10. The stereoscopic image where the picture elements of L and R are formed in a horizontal direction at the specified pitch and the picture elements of L and R are formed in a vertical direction in the stripe state is printed on the 2nd surface of the sheet 10. By arranging a light source 13 on the 2nd surface side of the stereoscopic photograph and observing the photograph distantly from the 1st surface side by a proper visual range, the stereoscopic image of a still picture is observed.

* NOTICES *

JPO and NCIPI are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] The stereograph which comes to print the solid image with which the image for right eyes and the image for left eyes were horizontally formed in the 2nd page of said transparency sheet by turns in the predetermined pitch while forming the parallax barrier of the shape of a vertical stripe of a predetermined pitch in the 1st page of a transparency sheet.

[Claim 2] The stereograph according to claim 1 characterized by observing from said 1st page side while arranging the light source to said 2nd page side.

[Claim 3] The stereograph according to claim 1 characterized by observing from said 2nd page side while arranging the light source to said 1st page side.

[Claim 4] Said parallax barrier is a stereograph according to claim 1 characterized by coming to be formed with the aluminum film.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the stereograph which can observe a solid static image, without needing special glasses.

[0002]

[Description of the Prior Art] Conventionally, the method of obtaining a stereograph with a multi-view type solid still camera is indicated by JP,57-7422,B. According to this approach, a stereograph is compoundable by printing through a lenticular sheet from two or more photoed negatives. And a solid image can be seen by sticking the same lenticular sheet as the above-mentioned on this stereograph.

[0003]

[Problem(s) to be Solved by the Invention] However, in the above-mentioned approach, since it was necessary to prepare a lenticular sheet separately while the processing which sticks a lenticular sheet is needed for the printed stereograph, it became expensive.

[0004] The stereograph with which this invention does not cancel the above-mentioned fault, and does not need a lenticular sheet, but a solid static image becomes observable cheaply is offered.

[0005]

[Means for Solving the Problem] This invention is a stereograph which comes to print the solid image with which the image for right eyes and the image for left eyes were horizontally formed in the 2nd page of said transparency sheet by turns in the predetermined pitch while forming the parallax barrier of the shape of a vertical stripe of a predetermined pitch in the 1st page of a transparency sheet.

[0006]

[Function] Since the image for right eyes will be shaded by said parallax barrier to a left eye while the image for left eyes is shaded by said parallax barrier to a right eye if the light source is arranged to the 2nd page side of a transparency sheet, only the 1st page side of said transparency sheet to preferred viewing distance separates with an above-mentioned means and it observes, only the image for right eyes is made a right eye, incidence only of the image for left eyes is carried out to a left eye, and stereoscopic vision becomes possible.

[0007]

[Example] Hereafter, one example of this invention is explained according to a drawing.

[0008] First, the sectional view of the stereograph of this invention is shown in drawing 1. This stereograph consists of solid images 13 printed by the 2nd page of the transparency sheet 10 which has predetermined thickness, the parallax barrier 11 printed by the 1st page of this transparency sheet, and a transparency sheet.

[0009] As shown in drawing 2 a, said parallax barrier 11 is printed in black ink in the shape of a perpendicular stripe in a predetermined pitch, and intercepts light.

[0010] Moreover, as the solid image 12 is created based on a still picture picture signal by the solid still video print system mentioned later and is shown in drawing 2 b, the pixel of L and R is horizontally formed in a predetermined pitch, and L and R are perpendicularly formed in the shape of a stripe.

[0011] And the light source 13 is arranged to the 2nd page side of the above-mentioned stereograph, since the image for right eyes will be shaded by said parallax barrier 11 to a left eye while the image for left eyes is shaded by said parallax barrier 11 to a right eye if only preferred viewing distance separates and is observed from the 1st page side, only the image for right eyes is made a right eye, incidence only of the image for left eyes is carried out to a left eye, and stereoscopic vision becomes possible.

[0012] Although it was the example which has arranged the light source to the 2nd page side of a stereograph, as shown in drawing 3, the light source 13 is arranged to a side, the 1st page, i.e., the parallax barrier, of a stereograph, and you may make it observe from the 2nd page side in the above-mentioned example. In this case, by using the parallax barrier 11 as the aluminum film, since the reflected light can also be used, the image of high brightness can be obtained.

[0013] In addition, in any [of drawing 1 and drawing 3] case, it can ask for the pitch with horizontal L and R of a solid image by the thickness of a transparency sheet, the distance from a transparency sheet to an observer, and an observer's interocular distance, and can ask for the pitch of a parallax barrier geometrically with the thickness of a transparency sheet, the distance from a transparency sheet to an observer, and said pitch of L and R of a solid image.

[0014] Next, the solid still video print system which creates the stereograph of this invention is explained.

[0015] Drawing 4 is the block diagram of the solid still video print system in this example, and the picture signal of an animation is first outputted, respectively from the object for right eyes, and the digital camcorders 1 and 2 for left eyes. Each of this digital camcorder output is supplied to frame memories 3 and 4. With the personal computer which mentions this frame memory later, writing and read-out are controllable and the data for still picture 1 screen are memorized. This frame memory output is supplied to the synthetic circuit 6. Here, synthetic processing is performed by interleaving image data on either side for horizontal every pixel.

[0016] And the image data of the compounded right and left is supplied to a personal computer (it is called a personal computer below) 7. This personal computer 7 can choose the scene of the arbitration of the output of said digital camcorders 1 and 2 as a still picture. Activation of selection of this still picture outputs a control signal to said frame memories 3 and 4. Then, after the image data for one right and left each is written in this frame memory, it is read at a low speed and said synthetic circuit 5 is supplied.

[0017] Furthermore, an alphabetic character etc. is compoundable to the still picture chosen within this personal computer 7. Moreover, the 3D monitor 8 is connected to said personal computer 7, and the monitor of the still picture by which character composition was carried out can be carried out.

[0018] And the image data processed with said personal computer 7 is outputted to the printer 8 of a sublimation mold, and is printed on the 2nd page of the transparency sheet 10. The image of the right and left to the shape of a perpendicular stripe will be arranged by turns by the printed transparency sheet 10.

[0019] In addition, the parallax barrier is beforehand printed by the 1st page of said transparency sheet in black ink.

[0020] Moreover, although composition of right-and-left image data made the pixel on either side interleave for every pixel in this example, this may be made to interleave by 2 pixels or more.

[0021] Furthermore, as an input means, although considered as the right-and-left digital camera, a

still camera with VTR, a laser disc, and a magnetic disk, CD-ROM, a scanner, etc. are applicable besides this. Moreover, a converter output convertible [from 2D picture signal] into 3D picture signal may be used.

[0022] In addition, even if the stereograph of this invention was not created by the solid still video print system, it processes optically from the negative film photoed by the solid still camera, and you may make it print it on said transparence sheet.

[0023] Furthermore, this invention is applicable also to solid roentgenography.

[0024]

[Effect of the Invention] According to [like / ****] this invention, since a stereograph having no special glasses and observable can be created without using a lenticular sheet, a stereograph can be enjoyed cheaply.

TECHNICAL FIELD

[Industrial Application] This invention relates to the stereograph which can observe a solid static image, without needing special glasses.

PRIOR ART

[Description of the Prior Art] Conventionally, the method of obtaining a stereograph with a multi-view type solid still camera is indicated by JP,57-7422,B. According to this approach, a stereograph is compoundable by printing through a lenticular sheet from two or more photoed negatives. And a solid image can be seen by sticking the same lenticular sheet as the above-mentioned on this stereograph.

EFFECT OF THE INVENTION

[Effect of the Invention] According to [like / ****] this invention, since a stereograph having no special glasses and observable can be created without using a lenticular sheet, a stereograph can be enjoyed cheaply.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, in the above-mentioned approach, since it was necessary to prepare a lenticular sheet separately while the processing which sticks a lenticular sheet is needed for the printed stereograph, it became expensive.

[0004] The stereograph with which this invention does not cancel the above-mentioned fault, and does not need a lenticular sheet, but a solid static image becomes observable cheaply is offered.

MEANS

[Means for Solving the Problem] This invention is a stereograph which comes to print the solid image with which the image for right eyes and the image for left eyes were horizontally formed in the 2nd page of said transparence sheet by turns in the predetermined pitch while forming the parallax barrier of the shape of a vertical stripe of a predetermined pitch in the 1st page of a transparence sheet.

OPERATION

[Function] Since the image for right eyes will be shaded by said parallax barrier to a left eye while the image for left eyes is shaded by said parallax barrier to a right eye if the light source is arranged to the 2nd page side of a transparency sheet, only the 1st page side of said transparency sheet to preferred viewing distance separates with an above-mentioned means and it observes, only the image for right eyes is made a right eye, incidence only of the image for left eyes is carried out to a left eye, and stereoscopic vision becomes possible.

EXAMPLE

[Example] Hereafter, one example of this invention is explained according to a drawing.
[0008] First, the sectional view of the stereograph of this invention is shown in drawing 1. This stereograph consists of solid images 13 printed by the 2nd page of the transparency sheet 10 which has predetermined thickness, the parallax barrier 11 printed by the 1st page of this transparency sheet, and a transparency sheet.

[0009] As shown in drawing 2 a, said parallax barrier 11 is printed in black ink in the shape of a perpendicular stripe in a predetermined pitch, and intercepts light.

[0010] Moreover, as the solid image 12 is created based on a still picture picture signal by the solid still video print system mentioned later and is shown in drawing 2 b, the pixel of L and R is horizontally formed in a predetermined pitch, and L and R are perpendicularly formed in the shape of a stripe.

[0011] And the light source 13 is arranged to the 2nd page side of the above-mentioned stereograph, since the image for right eyes will be shaded by said parallax barrier 11 to a left eye while the image for left eyes is shaded by said parallax barrier 11 to a right eye if only preferred viewing distance separates and is observed from the 1st page side, only the image for right eyes is made a right eye, incidence only of the image for left eyes is carried out to a left eye, and stereoscopic vision becomes possible.

[0012] Although it was the example which has arranged the light source to the 2nd page side of a stereograph, as shown in drawing 3, the light source 13 is arranged to a side, the 1st page, i.e., the parallax barrier, of a stereograph, and you may make it observe from the 2nd page side in the above-mentioned example. In this case, by using the parallax barrier 11 as the aluminum film, since the reflected light can also be used, the image of high brightness can be obtained.

[0013] In addition, in any [of drawing 1 and drawing 3] case, it can ask for the pitch with horizontal L and R of a solid image by the thickness of a transparency sheet, the distance from a transparency sheet to an observer, and an observer's interocular distance, and can ask for the pitch of a parallax barrier geometrically with the thickness of a transparency sheet, the distance from a transparency sheet to an observer, and said pitch of L and R of a solid image.

[0014] Next, the solid still video print system which creates the stereograph of this invention is explained.

[0015] Drawing 4 is the block diagram of the solid still video print system in this example, and the picture signal of an animation is first outputted, respectively from the object for right eyes, and the digital camcorders 1 and 2 for left eyes. Each of this digital camcorder output is supplied to frame memories 3 and 4. With the personal computer which mentions this frame memory later, writing and read-out are controllable and the data for still picture 1 screen are memorized. This frame memory output is supplied to the synthetic circuit 6. Here, synthetic processing is performed by

interleaving image data on either side for horizontal every pixel.

[0016] And the image data of the compounded right and left is supplied to a personal computer (it is called a personal computer below) 7. This personal computer 7 can choose the scene of the arbitration of the output of said digital camcorders 1 and 2 as a still picture. Activation of selection of this still picture outputs a control signal to said frame memories 3 and 4. Then, after the image data for one right and left each is written in this frame memory, it is read at a low speed and said synthetic circuit 5 is supplied.

[0017] Furthermore, an alphabetic character etc. is compoundable to the still picture chosen within this personal computer 7. Moreover, the 3D monitor 8 is connected to said personal computer 7, and the monitor of the still picture by which character composition was carried out can be carried out.

[0018] And the image data processed with said personal computer 7 is outputted to the printer 8 of a sublimation mold, and is printed on the 2nd page of the transparence sheet 10. The image of the right and left to the shape of a perpendicular stripe will be arranged by turns by the printed transparence sheet 10.

[0019] In addition, the parallax barrier is beforehand printed by the 1st page of said transparence sheet in black ink.

[0020] Moreover, although composition of right-and-left image data made the pixel on either side interleave for every pixel in this example, this may be made to interleave by 2 pixels or more.

[0021] Furthermore, as an input means, although considered as the right-and-left digital camera, a still camera with VTR, a laser disc, and a magnetic disk, CD-ROM, a scanner, etc. are applicable besides this. Moreover, a converter output convertible [from 2D picture signal] into 3D picture signal may be used.

[0022] In addition, even if the stereograph of this invention was not created by the solid still video print system, it processes optically from the negative film photoed by the solid still camera, and you may make it print it on said transparence sheet.

[0023] Furthermore, this invention is applicable also to solid roentgenography.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the sectional view of the stereograph in one example of this invention.

[Drawing 2] It is the top view of the 1st page and the 2nd page of a stereograph in this example.

[Drawing 3] It is the sectional view of the stereograph in other examples of this invention.

[Drawing 4] It is the block diagram of the solid still video print system which creates the stereograph of this invention.

[Description of Notations]

10 Transparence Sheet

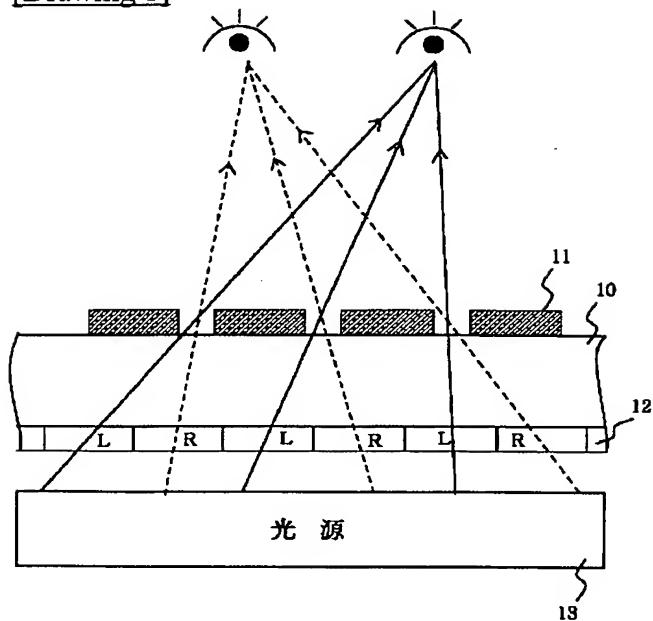
11 Parallax Barrier

12 Solid Image

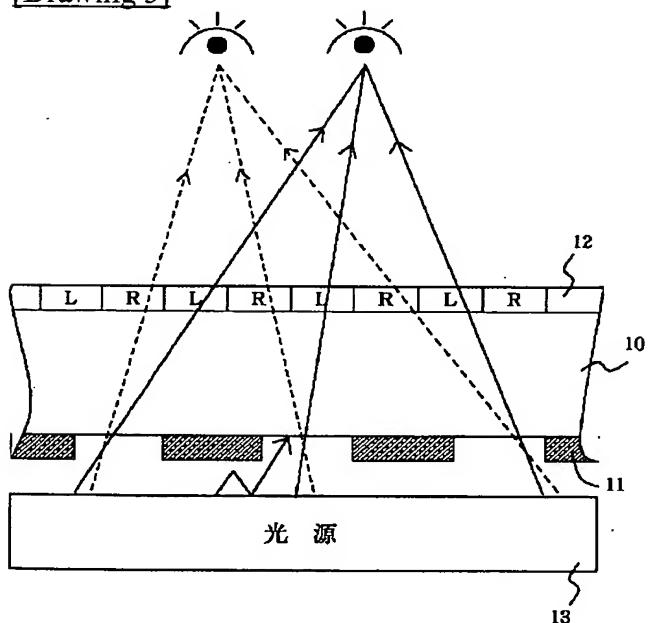
13 Light Source

DRAWINGS

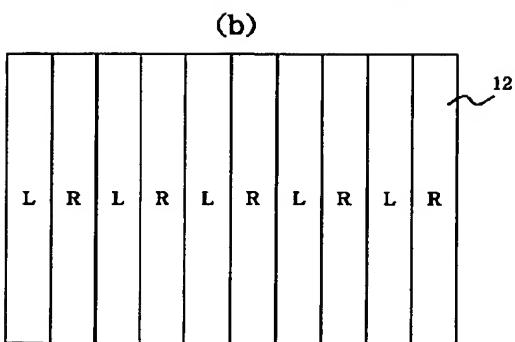
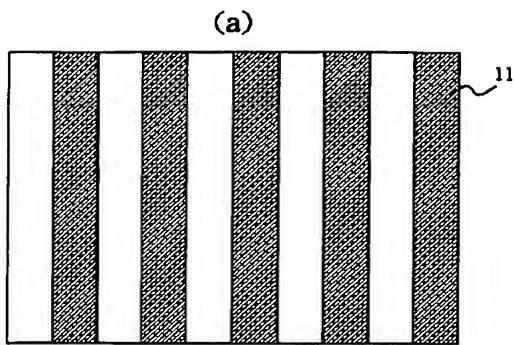
[Drawing 1]



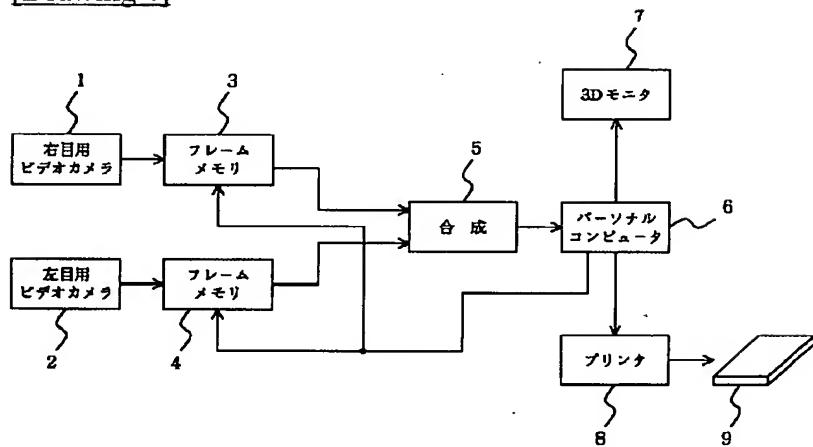
[Drawing 3]



[Drawing 2]



[Drawing 4]



WRITTEN AMENDMENT

----- [a procedure revision]

[Filing Date] February 1, Heisei 7

[Procedure amendment 1]

[Document to be Amended] Specification

[Item(s) to be Amended] 0008

[Method of Amendment] Modification

[Proposed Amendment]

[0008] First, the sectional view of the stereograph of this invention is shown in drawing 1. This stereograph consists of solid images 12 printed by the 2nd page of the transparency sheet 10 which